Architecture of Grammar, day 2

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Recap from day 1

Scorecard:

- structure sensitivity
- phonology insensitivity
- purely syntactic factors, e.g. categories?
- LF/PF parallelism: allosemy?
- universal cartography?

'Movement'

Recall: movement/scope argument against Generative Semantics (Chomsky 1973)

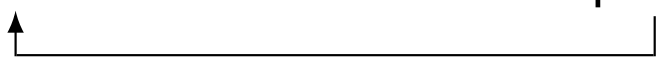
(1) a. John didn't buy many arrows.
b. Many arrows weren't bought by John.

Expectations from Meaning First: start with semantic representation, but which?

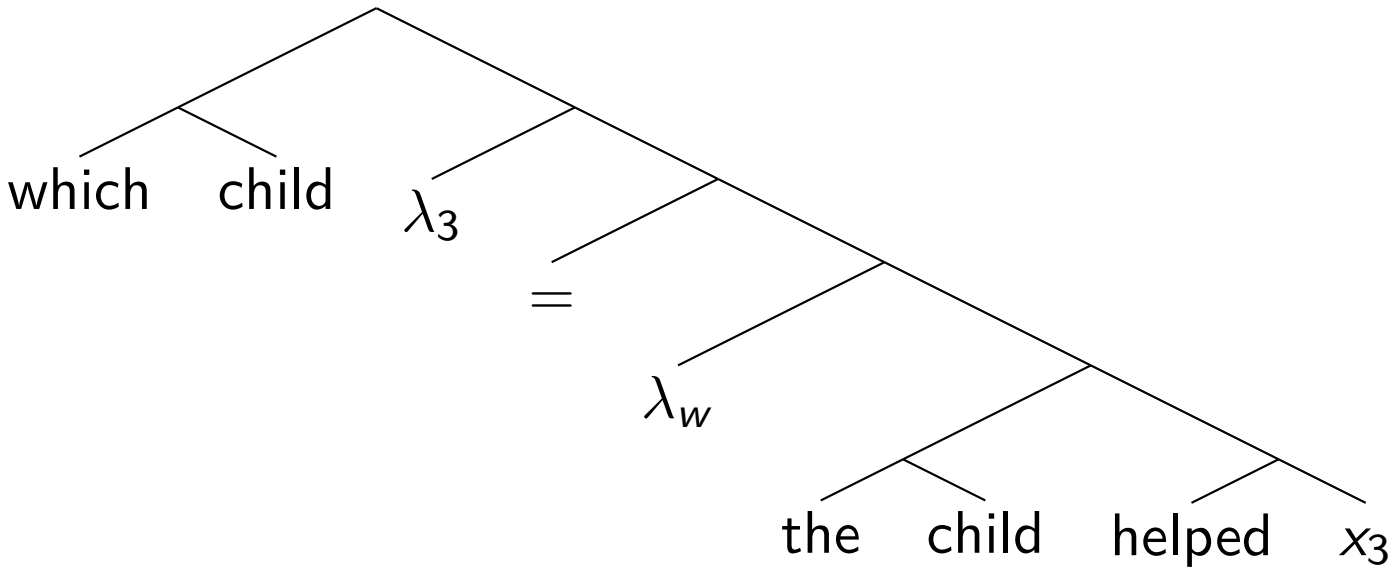
(2) Which child did the child help?

Trace theory (Chomksy 1977): 'movement' just a metaphor:

(3) Which child did the child help t?



Karttunen semantics with plain variables



The copy/remerge theory

Chomsky (1995):

- Movement reuses lexical material
- enumeration indices track lexical items

(4) Which child did the child help *t*?

(5) [⟨which,1⟩ ⟨child,1⟩] λ_3 <QUESTION,1⟩ ⟨did, 1⟩ [⟨the, 1⟩ ⟨child, 2⟩] ⟨help, 1⟩ [[⟨which, 1⟩ ⟨child, 1⟩] 3]

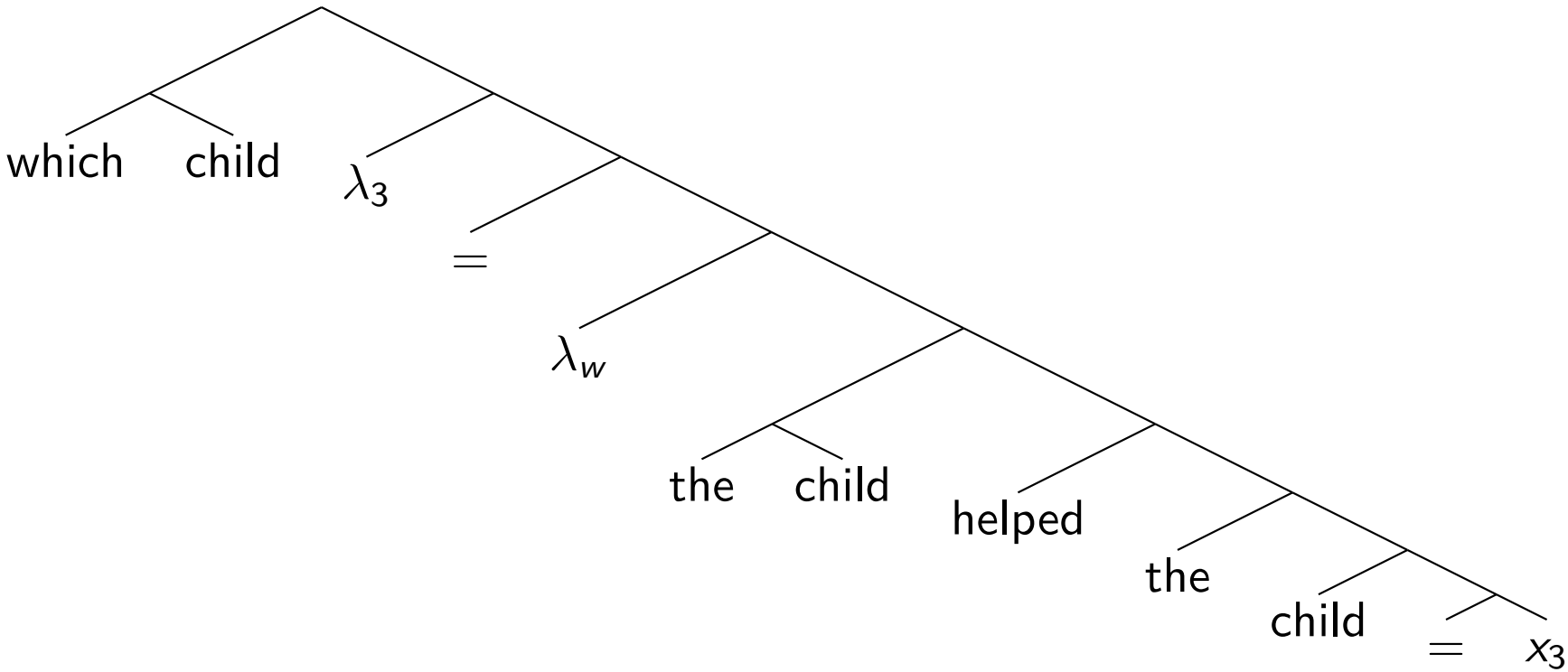
At PF: Pronounce each enumeration item at most once.

At LF, LF 'Trace conversion', ignore enumeration indices otherwise:

(6) [⟨which,1⟩ ⟨child,1⟩] λ_3 <QUESTION,1⟩ ⟨did, 1⟩ [⟨the, 1⟩ ⟨child, 2⟩] ⟨help, 1⟩ [[⟨which, 1⟩ ⟨child, 1⟩] x_3]

(7) [[⟨which, 1⟩ ⟨child, 1⟩] x_3] $\mapsto$ [⟨the,–⟩ [⟨child, 1⟩ [EQUAL-TO x_3]]]

Karttunen semantics with copies & variables



Meaning First View of Movement

Goal:

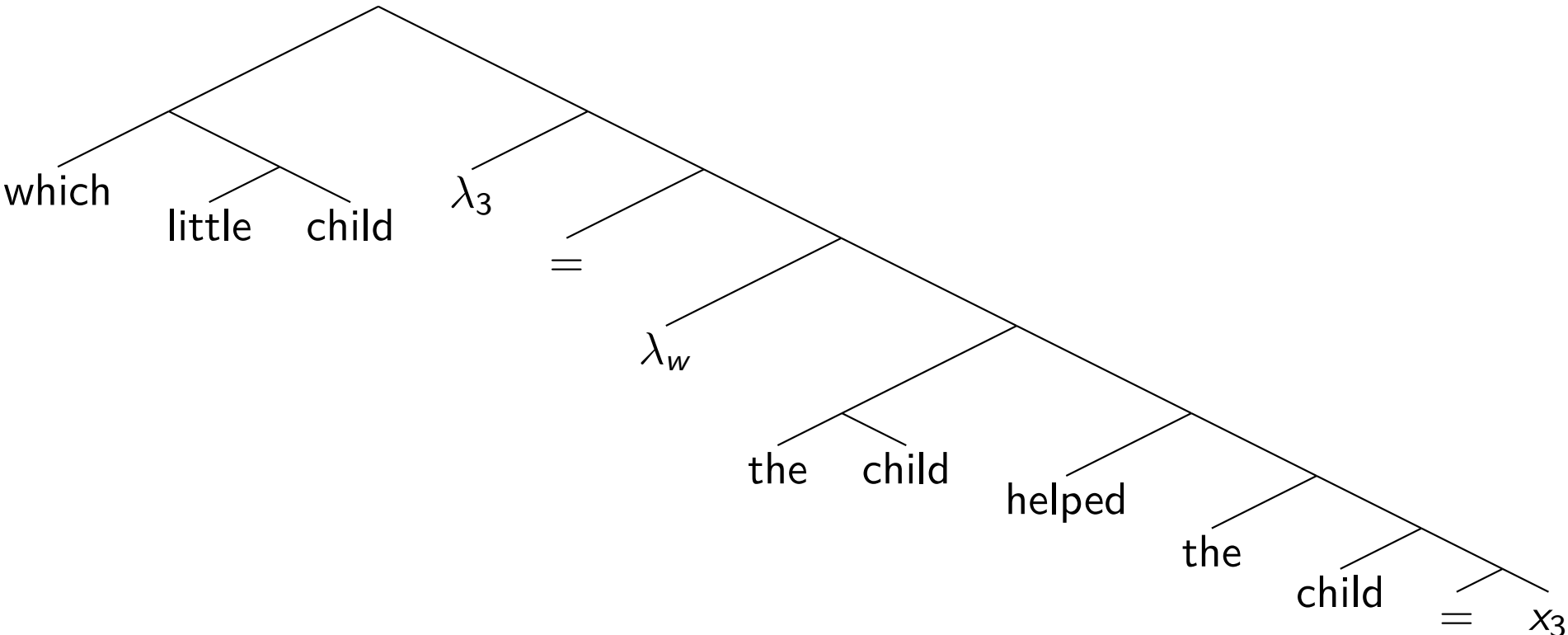
- representational: generate two (or more) independent phrases
- semantic binding as with e.g. pronouns
- semantic incompatibility blocks semantic binding
- spell-out determines linear order and pronunciation

Structure of the argument:

1. arguments that movement semantics relates two non-identical DPs
2. show that spell-out algorithm can be stated

Late adjunction

No contradiction as long as intersective (Sauerland 2004):



Late and early adjunction don't differ in interpretation though.

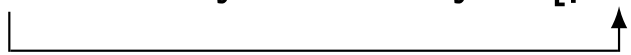
Late Merge in Extraposition

Example: 'Extraposed' adjuncts in English (Fox & Nissenbaum 1999)

(8) *I looked for a/*any picture very intensely by this artist.*
(a $\gg$ look for, *look for $\gg$ a)

Fox & Nissenbaum's proposal: Unpronounced 'overt' movement of 'a/any picture' followed by insertion of 'by this artist'. (also: Lebeaux 1991, 2009, Sauerland 1998, Fox 2000)

(9) I looked for a picture very intensely ~~a [picture~~ by this artist]



Fox (2017) – argument 1 for double interpretation

Extraposition blocks de re of noun:

(10) a. John saw an alleged mouse from Mars yesterday.
b. # John saw an alleged mouse yesterday from Mars.
entailments: there is an alleged mouse x,
that alleged mouse is alleged to be from Mars

But de dicto of noun available:

(11) John saw an alleged alien yesterday from Mars.
entailments: there is an alleged alien x,
that alleged alien is alleged to be from Mars

More evidence for double interpretation

(20) a. I'll [[explain [a paper that was recommended by a linguist] when we meet] who teaches at UCLA].

b. *I'll [[explain [a paper that wasn't recommended by any linguist] when we meet] who teaches at UCLA].

(20)' **LF representations for (20) (by local QR + embedded LM)**

a. [A paper that was recommended by a linguist who teaches at UCLA].
I'll explain [a paper that was recommended by a linguist]

b. [A paper that wasn't recommended by anyone who teaches at UCLA]
I'll explain [a paper that wasn't recommended by anyone]

(20a)" **Interpretation of** (20a)' **(by Trace Conversion)**

⟦[A paper that was recommended by a linguist who teaches at UCLA]⟧
(λx ⟦[I'll explain [the$_1$ paper that was recommended by a linguist]⟧$^{1\to x}$)

= ⟦[A paper that was recommended by a linguist who teaches at UCLA]⟧
(λx: x is a paper that was recommended by a linguist. I'll explain x)

(20b)" **Interpretation of** (20)'b **(by Trace Conversion)**

⟦[A paper that wasn't recommended by anyone who teaches at UCLA]⟧
(λx ⟦[I'll explain [the$_1$ paper that wasn't recommended by anyone]⟧$^{1\to x}$)

= ⟦[A paper that wasn't recommended by anyone who teaches at UCLA]⟧
(λx: x is a paper that wasn't recommended by anyone. I'll explain x)

Supporting child language evidence

Guasti et al. (2023): Children sometimes overpronounce / undercompress material adults leave silent.

(12) a. silent antonym markers (Sauerland et al. 2024)
b. silent negation with negative indefinites (Nicolae & Yatsushiro 2022, Driemel et al. 2023)
c. light null verbs in decomposition (Martin et al. 2022)

Pronounced traces: resumptive noun phrases in children's relative clauses (Ferreira et al. 1976, Labelle 1990 and others):

(13) el gato empuja al perro que el conejo lava al perro
the cat pushes the dog that the rabbit washes the dog

(14) Ich möchte das Mädchen sein, das der Opa das Mädchen umarmt.
I want the girl be who the granddad the girl hugs
I want to be the girl who the granddad hugs. (Yatsushiro & Sauerland 2018)

Support from Adult resumptive pronouns

Person mismatch with Dinka resumptive *ké(ek)* (van Urk, 2018):

(15) *Wêek cíi Áyèn ké tîiN*
2PL PRF.OV Ayen.GEN 3PL see.NF
'You all, Ayan has seen [them].'

Van Urk's proposal: Movement of plural 'you' followed by PF-deletion of 2-nd person features in a chain. (also: Scott 2021, Mendes & Ranero 2021, Georgi & Amaechi 2022)

(16) [SECOND, PL] cíi Áyèn [~~SECOND~~, PL] tîiN.

Towards a Full Account

Some critical examples: LF to PF mapping in a late adjunction example:

(17) $\left[\ \lambda_x$ I looked for $\boxed{\text{the}_x\ [\sqrt{\text{PICTURE}} \cap \text{N}]}$ very intensely $\ \right]$

$\boxed{\exists\ [\sqrt{\text{PICTURE}} \cap \text{N} \cap \text{by this artist}]}$

I looked for $\boxed{\textit{a picture}}$ *very intensely* $\boxed{\textit{by this artist}}$*.*

Pronouns arise in Ruys (1992) QR-out-of-conjunction example:

(18) λ_x [a student likes $\boxed{\text{the}_x \text{ professor} \cap \text{N}}$ and wants $\boxed{\text{the}_x \text{ professor}}$ to be on his committee] $\boxed{\forall[\ \text{professor} \cap \text{N}\ ]}$

$\boxed{\emptyset}$ *A student likes* $\boxed{\textit{every professor}_i}$ *and wants* $\boxed{\textit{her}_i}$ *to be on his committee.*

A movement

Sauerland (1998), Takahashi & Hulsey (2007): traces of A-movement contain no or almost no restrictor.

(19) $\boxed{\textit{A relative of Mary}_i\textit{'s}}$ *seems to her*$_i$ $\boxed{\emptyset}$ *to be in trouble.*

$\boxed{\exists\ [\text{N} \cap \sqrt{\textsc{relative}}\ \text{of Mary's}]}$ λ_x seems to her to $\boxed{\text{the}_x\ \text{N}}$ [to be in trouble.]

Total reconstruction for scope:

(20) *A woman is likely to win this ultramarathon.*

$\boxed{\emptyset}$ is likely to $\boxed{\exists\ [\text{N} \cap \sqrt{\textsc{woman}}]}$ [to win]

Basic ideas for English

1. (full) chain: All coindexed NPs (i.e. chain links) in a sentence
2. argument position: All positions where the sister of the NP is a predicate
3. EPP position: Spec(TP) position of finite verbs, raising-to-object position of ECM verbs
4. wh-position: Highest position in the left periphery of a question
5. subchain: Section of a chain containing one argument position and all c-commanding co-indexed chain links except those c-commanding also higher argument positions.

EPP positions

There expletives: If a chain link is in an EPP position doesn't contain a $\sqrt{\text{ROOT}}$, pronounce it as *there* with the right agreement.

(21) *I expect there to be coffee left.*

(22) *You can drink the coffee I expect there to be left.*

Total reconstruction: If an EPP position is empty, copy the next lower NP and pronounce it in the EPP position unless it is already pronounced in a wh-position.

(23) *A woman is likely to win this ultra-marathon.* (likely $\gg$ a woman)

(24) *How many women are likely to win this ultra-marathon.* (likely $\gg$ many women)

Wh-positions

Multiple wh: Pronounce the highest wh-phrase in the left periphery of a question.

(25) *Who ~~what~~ Q ~~who~~ ordered what?*

Partial reconstruction: Pronounce also predicates in the highest wh-position that only occur in lower chain links.

(26) *Which article about her did no celebrity read?*

(27) which article Q did no celebrity read [article about her]

Maybe extraposed material is exempt from the requirement to be pronounced at the top:

(28) *Which picture did you look for very intensely by this artist.*

QR-positions and pronouns

Undo QR as much as possible: Pronounce quantifiers with the right quantificational force in the EPP or else argument position of that subchain such that they are leftmost.

(29) *A student likes every professor and wants her to be on his committe.* (every professor $\gg$ a student)

If PP or relative clause modifiers only occur in higher positions, pronounce them there.

(30) *I looked for a picture very intensely by this artist.*

Pronouns and elsewhere

Pronouns: If material has not been pronounced in a subchain, but it overlaps with one where it has been pronounced, use a pronoun.

(31) Which student ~~student~~ called her[~~student~~] father?

(32) ~~every prof~~ A student likes every prof and wants her to ...

Strong crossover: The pronoun will be part of the chain and be the trace in (34).

(33) **Which girl did she say [t would win]?*

(34) *Which girl t said she would win?*

Weak crossover: As in QR, a preference for (36) with pied-piping seems to apply.

(35) $^{??}$*Which girl did her mother say t would win?*

(36) *Which girl's mother said she would win?*

Elsewhere: Pronounce material still not pronounced in its subchain in an EPP position or else its argument position.

Locality

Movement binding dependencies: sensitive to island phenomena and require intermediate chain links:

(37) Who did John read a book that wrote?

(38) me e gble be wò for *t* ?
Who you say that he[+wh] hit *t*
Who did you say that -- he hit t? (ewe, Collins 1993, p. 188)

Pronoun binding dependencies: not sensitive to islands, don't allow intermediate chain links

(39) *Who is such that John read a book that she wrote?*

(40) *(Who is such that you said that he[-wh] hit her?)*

Difference not captured so far.

- relate to non-pronunciation of lower chain links
- relate to semantic minimality (appendix sketch)

Summary

Meaning first view of movement:

- basic assumption: not identical copies, but semantically compatible descriptions
- some evidence for non-identity
- elimination of enumeration indices by use of binding indices, but need chains for pronunciation
- account of locality open

Minimality

Binding by the closest compatible NP:

(41) **A man$_1$ seems a woman to push t_1.*
intended: A man is such that it seems a woman pushes him.

(42) [N $\cap$ $\sqrt{\text{MAN}}$] seems [N $\cap$ $\sqrt{\text{WOMAN}}$] to push [N]

Minimization: A proposition is true only of states/models that involve the minimum possible number of entities, i.e. one for the following:

$$[\text{N} \cap \sqrt{\text{WOMAN}}] \text{ to push } [\text{N}]$$

In general though minimization makes too strict predictions.

Contrast Blocking Bound Interpretations

(43) An ox pulled a yak.

Minimization of the following would require a yak-ox pulling itself.

(44) [N $\cap$ $\sqrt{\text{OX}}$] pull [N $\cap$ $\sqrt{\text{YAK}}$]

Assume: contrast of the two nouns (e.g. exhaustification) adds inferences that block reflexivization.

(45) [N $\cap$ $\sqrt{\text{OX}}$ $\cap$ $\neg\Box\sqrt{\text{YAK}}$] pull [N $\cap$ $\sqrt{\text{YAK}}$ $\cap$ $\neg\Box\sqrt{\text{OX}}$]

Contrast Restricted to Domains

Movement dependencies crossing another nominal require an chain link near the nominal crossed (e.g. van Urk 2018, Keine & Zeijlstra 2024), Dinka:

(46) Yeyíŋà yé ké tâak, cíi Bôl ké tîŋ
who.PL HAB.2SG PL think PFV.OV Bol.GEN PL see
Who all do you think Bol saw.

(47) Yeyíŋà yé ké tâak, cíi Bôl ké tîŋ

Note: The matrix subject needs to be contrasted with the trace *ké* to not bind it.

Proposal: Contrast requires two noun phrase be in a constituent at the intermediate position:

(48) $[\exists[\mathsf{N} \cap 2\textsc{nd} \cap \textsc{sg}] \cap \exists[\mathsf{N} \cap \textsc{person} \boxed{\cap \neg \Box(2\textsc{nd}) \cap \neg \Box(\textsc{sg})}]$